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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,623	11/21/2005	Miyuki Shibano	KNI-203-A	7040
21828 7590 03/30/2007 CARRIER BLACKMAN AND ASSOCIATES 24101 NOVI ROAD SUITE 100 NOVI, MI 48375			EXAMINER PERRIN, JOSEPH L	
			ART UNIT 1746	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		03/30/2007	ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/30/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/530,623

Applicant(s)

SHIBANO ET AL.

Examiner

Joseph L. Perrin, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

2. Claim 10 is objected to because of the following informalities: In claim 10, there appears to be some typographical errors. The term "is" is not needed and should be removed. Also, "andclosing" should be spaced apart. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-2, 6-7 & 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 05-315313 to MAJIMA et al. ("JP '313") in view of JP 2001-170583 to HAYASHI ("JP '583"). As clearly illustrated, for instance in the abstract and Figure 1, JP '313 discloses an ultrasonic semiconductor wafer washing apparatus (10) comprising a washing tank (1) with side walls having an inlet and outlet opening provided with closable doors (7), an ultrasonic oscillator (6) in the tank for emitting ultrasonic waves in the cleaning liquid, a shifting mechanism (4) which charges and

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discharges the object in the washing tank through the inlet and outlet, respectively, and a mechanism by which the cleaning liquid is flow controlled from a resting level below the height of the inlet and outlet (Figure 2A) to a working level above the inlet and outlet (Figure 2B). While JP '313 discloses raising the liquid level above the inlet/outlet to treat the object and lowering the level below the inlet/outlet to discharge the object, JP '313 does not expressly disclose circulating the fluid via a storage tank.

JP '583 teaches that it is known to provide an ultrasonic wafer cleaning apparatus with a storage tank (7) and circulating the cleaning fluid to and from the washing tank (1) (see, for instance, Figure 1 and the abstract). The position is taken that it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the ultrasonic cleaning apparatus of JP '313 with the storage tank and circulation system of JP '583 in order to add/remove cleaning fluid to a washing tank. The Examiner notes that such storage/circulation systems are common knowledge in the semiconductor cleaning art and it would have been well within the level and knowledge of one having ordinary skill in the art to provide such system for its well-known purpose. Moreover, there would be a reasonable expectation of success in providing the apparatus of JP '313 with the storage/circulation system of JP '583 in order to arrive at applicant's claimed invention since both are in the same field of endeavor (i.e. ultrasonic semiconductor cleaning).

The Examiner notes that the recitation of "deaerated cleaning liquid" is considered intended use and not afforded patentable weight in the claimed apparatus.

MPEP 2115 and caselaw is replete with teachings disclosing that expressions relating an apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, “[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Moreover, the courts have held that apparatus claims are defined by structure. Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). “[A]pparatus claims cover what a device is, not what a device does.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). (emphasis in original)

Regarding claims 2 & 7, while the references disclose a washing tank in accordance with the claimed invention the references do not expressly disclose plural washing tanks arranged in sequence. The position is taken that providing plural tanks to provide additional wafer cleaning for more effective cleaning would have been well within the level and knowledge of one having ordinary skill in the art since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8; *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP '313 in view of JP '583 as applied to claims 1-2, 6-7 & 10-15 above, and further in view of JP '294. Recitation of JP '313 & JP '583 are repeated here from above. The operation of the ultrasonic semiconductor washing systems read on applicant's claimed method with the exception of using deaerated cleaning liquid. JP '294 teaches that it is known to clean semiconductor wafers using deaerated cleaning liquid "to improve effectiveness for eliminating particles of a substrate in supersonic cleaning". Therefore, the position is taken that it would have been obvious to operate the ultrasonic wafer cleaning system disclosed by the combination of JP '313 & JP '583 with the deaerated cleaning liquid of JP '294 for the purpose of improving cleaning effectiveness in a supersonic cleaning method.

6. Claims 4-5 & 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '313 in view of JP '583 as applied to claims 1-2, 6-7 & 10-15 above, and further in view of U.S. Patent No. 6,423,947 to WOMACK et al ("WOMACK"). Recitation of JP '313 & JP '583 are repeated here from above. Although JP '313 clearly discloses the inlet/outlet openings of the washing chamber being in sealed communication with the doors, JP '313 does not expressly disclose an expandable seal thereinbetween.

WOMACK teaches that it is known to provide a semiconductor processing chamber sidewall opening with a door (28) and flexible/expandable sealing means (32) to provide a proper seal. Therefore, the position is taken that it would have been obvious to provide the door of JP '313 with a flexible/expandable seal, such as that

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disclosed in WOMACK, in order to provide a proper seal in a semiconductor processing apparatus. The Examiner notes that it is common knowledge to provide a door with rubber seals to improve the sealing between a door and opening, and such sealing mechanism reads on applicant's claimed "expandable packing material" since rubber has well known elastic properties and is capable of expanding and contracting to provide improved sealing means.

### ***Conclusion***

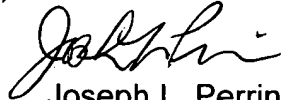
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent No. 6,659,116 to WILLIAMS et al., which discloses a semiconductor processing apparatus with expandable bladder for providing sealing means.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph L. Perrin, Ph.D. whose telephone number is (571)272-1305. The examiner can normally be reached on M-F 7:00-4:30, except alternate Fridays.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael E. Barr can be reached on (571)272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Joseph L. Perrin, Ph.D.  
Primary Examiner  
Art Unit 1746

JLP